

# PATENT SPECIFICATION



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157,515

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## PROVISIONAL SPECIFICATION.

### Fish Products and the Production thereof.

I, PETER BURD JAGGER, of 11, Montagu Street, Portman Square, London, W. 1, Engineer, do hereby declare the nature of this invention to be as follows:

5 The present invention relates mainly to the preparation of dry and stable meal-like or flour-like products from the rejected portions of soft-scaled or soft-skinned fish as, for example, cod and ling,  
10 but incidental to the method are aspects in which the meal-like condition is not realised. Incidental to the present method, are aspects in which portions unsuited for human food yield food for the  
15 lower animals, and also manure.

The rejected portions or "offals" of such fish as cod or ling which are treated to produce human food by the herein described process, are the head, the skin,  
20 and the vertebral parts to which in the process of dressing for producing fillets and dried fish, a considerable proportion of the muscular mass adheres. The head is trimmed by removing or punching out  
25 the eyes, jaws and teeth, and also removing the gills and mouth, after which, or incident to which the head should be opened or split so as to lie flat.

The parts thus prepared dried by a  
30 gentle and slow heat after which they are ground separately or together to a meal or flour, this meal being used in the production of bread porridge or the like. The different grades or qualities of flour or  
35 meal are conveniently kept separate in manufacture so that food value may be adjusted by suitable admixture. The vertebral portion gives abundant phosphates and the various grades of skin differ  
40 among themselves in this respect. The opened or split heads trimmed as described may be marketed separately as a kind of fish steak.

The gills, eyes and rejects from the

[Price 1/-]

head may be dried and ground to a 45  
"bran" grade and sold as a food for the lower (non-human) animals, and may be compressed for export.

The stomach, internal organs, blood and like, are ordinarily treated for use as 50  
manure.

Before butchering or dividing it is very desirable to remove the blood by injection or washings through the circulatory system a final wash with a suitable anti-  
55 septic in aqueous solution or admixture being sometimes desirable, salt, nitre and creosote like products being suitable, but aromatic and flavouring antiseptics as for example nutmeg may be employed. 60

In trimming or "butchering" certain conveniences and facilities in combination are to be regarded as a part of the present invention as for example a travelling  
65 table with control for motion and rest, eye punches with control for varying interocular distances, positions for the various classes and automatic cast-offs into receptacles or shoots. Alternatively travelling bands may carry the products. 70

The drying device which is generally suitable is one in which a stream of warm gaseous matter, which may conveniently be the draft and products of combustion from wood or other vegetable fuel circulates through or among grills, studded  
75 plates or like in which the fish pieces are placed, but any type of drying appliance as a vacuum cupboard dryer, or a cylinder-spiral dryer may be employed. An  
80 occasional and controlled injection into the drying system of creosote like or other vapour or spray is often expedient; and the aromatic flavouring as nutmeg, for example; already mentioned, may be  
85 introduced in this way. The aromatic flavouring whether of the creosote or nutmeg class tends much to the conservation

and non-ranciding of the oil of the fish, but it will be noted that the parts hitherto mentioned contain but little oil.

The oil may be partly removed by 5 known means, as for example continuous or periodic extraction with appropriate solvents.

It may be emphasised that the skins and other parts should be thoroughly 10 washed and cleaned before drying and grinding; any usual antiseptic treatment of a non-poisonous kind, and as adapted for food products, as for example, salt, boracic acid, aromatics or like may be 15 associated with the washing if expedient.

The ground flour or meal whether fine or coarse when once thoroughly dried keeps well—even if exposed to the air and without antiseptics. Nevertheless her- 20 matic sealing and the use of non-aromatic

or aromatic antiseptics may be resorted to, and are desirable in certain cases.

The desirability of establishing the milling and other plant for the so-called offals in close proximity to the localities 25 where large amount of filleting and dried good trade is carried on, is obvious. The curing or drying should be as immediately close to the filleting establishment as possible, and several drying stations may 30 supply one milling centre; the dry material being easy to transport without risk of damage; hence such transport is merely a question of cost.

Dated this 6th day of October, 1919. 35

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Patent Agents for the Applicant.

## COMPLETE SPECIFICATION.

### Fish Products and the Production thereof.

40 I, PETER BURD JAGGER, of 11, Montagu Street, Portman Square, London, W. 1, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly 45 described and ascertained in and by the following statement:—

The present invention relates mainly to the preparation of dry and stable meal-like or flour-like products from the 50 rejected portions of soft-scaled or soft-skinned fish as, for example, cod and ling, but incidental to the method are aspects in which the meal-like condition is not realised. Incidental to the present 55 method are aspects in which portions unsuited for human food yield food for the lower animals, and also manure.

The rejected portions or "offals" of such fish as cod or link which are treated 60 to produce human food by the herein described process, are the head, the skin, and the vertebral parts to which in the process of dressing for producing fillets and dried fish, a considerable proportion 65 of the muscular mass adheres. The head is trimmed by removing or punching out the eyes, jaws and teeth, and also when desirable or necessary removing the gills and mouth, after which, or incident to 70 which the head should be opened or split so as to lie flat.

The parts thus prepared are dried by a gentle and slow heat after which they are ground separately or together to a

meal or flour, this meal being used in the 75 production of bread porridge or the like. The different grades or qualities of flour or meal are conveniently kept separate in manufacture so that food value may be adjusted by suitable admixture. The 80 vertebral portion gives abundant phosphates and the various grades of skin differ among themselves in this respect. The opened or split heads trimmed as described may be marketed separately as 85 a kind of fish steak.

The gills, eyes and rejects from the head may be dried and ground to a "bran" grade and sold as a food for the 90 lower (non-human) animals, and may be compressed for export.

The stomach, internal organs, blood and like are ordinarily treated for use as manure.

Before butchering or dividing it is 95 desirable to remove the blood by, for example, washing in known manner.

In trimming or "butchering" certain conveniences and facilities in combination are to be regarded as a part of the 100 present invention as for example a travelling table with control for motion and rest, eye punches with control, for accommodating varying interocular distances, positions for the various classes 105 and automatic cast-offs into receptacles or shoots. Alternatively travelling bands may carry the products.

The drying device which is generally,

suitable is one in which a stream of warm gaseous matter, which may conveniently be the draft and products of combustion from wood or other vegetable fuel circulates through or among grills, studded plates or like in which the fish pieces are placed, but any type of drying appliance as a vacuum cupboard dryer, or a cylinder-spiral dryer may be employed. An occasional and controlled injection into the drying system of creosote like or other vapour or spray is often expedient; and the aromatic flavouring as nutmeg, for example already mentioned, may be introduced in this way. The aromatic flavouring whether of the creosote or nutmeg class tends much to the conservation and non-ranciding of the oil of the fish, but it will be noted that the parts hitherto mentioned contain but little oil.

When necessary the oil may be removed or partly removed by known means, as for example continuous or periodic extraction with appropriate solvents.

It may be emphasised that the skins and other parts should be thoroughly washed and cleaned before drying and grinding; any usual antiseptic treatment of a non-poisonous kind, and as adapted for food products, as for example, salt, boracic acid, aromatics or like may be associated with the washing if expedient.

The ground flour or meal whether fine or coarse when once thoroughly dried keeps well—even if exposed to the air and without antiseptics. Nevertheless hermetic sealing and the use of non-aromatic or aromatic antiseptics may be resorted to, and are desirable in certain cases.

The desirability of establishing the milling and other plant for the so-called offals, in close proximity to the localities where large amount of filleting and dried good trade is carried on, is obvious. The curing or drying should be as immediately close to the filleting establishment as possible, and several drying stations may supply one milling centre; the dry material being easy to transport without risk of damage; hence such transport is merely a question of cost.

By way of example the accompanying drawings illustrate a form of "butchering" apparatus which may be adopted.

Fig. 1 is a side view, Fig. 2 a plan view, and Fig. 3 an end view of the apparatus.

Fig. 4 is a diagrammatic view of a manual control for the eye punches, while Fig. 5 illustrates an arrangement whereby varying interocular distances are accommodated.

Referring to Figs. 1, 2 and 3, a travelling feed band 1 carries the products, for

example, the heads, forward to the cutters 2, 3, and punches 4. The cutters may be of any suitable form, for example, in the form of blade cutters as shewn. The cutters 2 remove the jaws and teeth and the punches 4 remove the eyes. The cutter 3 opens or splits the heads so as to lie flat. The gills and mouth may be removed before placing the head on the band or the cutters 2 or supplementary cutters may perform this operation. The cutters and punches may be mounted in a block 2<sup>a</sup> arranged to slide up and down on suitable guides, movement being imparted to the block in a fashion comparable to an ordinary screw press.

The cutters and punches may be arranged adjustable. The positioning of the cutters will be such as will conform to the position of the parts to be operated upon when placed thereunder.

From the punches and cutters the rejects from the heads pass into a shoot 5, while the opened or split trimmed heads are fed forward to a delivery band or table 6.

Any convenient form of drive may be used, that shewn by way of example comprising a chain drive 7 between the driven and follower shafts.

The feed band may have mounted thereon trays or receptacles 8 for the reception of the products, the trays or receptacles 8 having studs or projections 9 engaging teeth 10 on a disc or wheel 11 on the driving shaft. The follower disc 11<sup>a</sup> is also provided with a toothed disc corresponding to 10.

In Fig. 4 is shewn an arrangement whereby the punches and cutters are under a manual control 12.

Fig. 5 illustrates an arrangement whereby varying the interocular distances are accommodated. The feed carrier or tray has a range of holes 14, each hole having a separate co-operating plunger so that the head when brought beneath the plungers rests with the eyes in alignment with one or the other pairs of holes and the particular plungers for the effective pair of holes are then operated for removing the eyes. The setting of the range of holes is such that interocular distances occurring between heads of a normal grown fish are accommodated. The holes and punches may in a variant arrangement be under a control as to allow of movement so as to be brought into alignment with the eyes of the particular head being operated upon before the punching is carried out.

Having now particularly described and ascertained the nature of my said inven-

tion and in what manner the same is to be performed, I declare that what I claim is:—

- 5 1. Process for the production of dry and stable meal-like or flour-like products from the rejected portions of soft-scaled or soft skinned fish comprising a trimming or butchering of the head, drying by a gentle and slow heat, and thereafter grinding.
- 10 2. Process for the production of dry and stable meal-like or flour-like products as claimed in Claim 1 hereof involving a separate operation for the extraction or
- 15 part extraction of the oil.
3. The use in the process claimed in Claim 1 hereof of a drying device in which a stream of warm gaseous matter is circulated.
- 20 4. The employment with a drying device for use in the process claimed in Claim 1 or Claim 3 hereof of an occasional and controlled injection into the drying system of an antiseptic flavouring of the
- 25 kind described.
5. The employment with a drying device for use in the process claimed in Claim 1, or Claim 3, or Claim 4 hereof of an occasional and controlled injection
- 30 into the drying system of an aromatic flavouring of the kind described.
6. A meal or flour prepared according to the process set forth.

7. The opened or split head of a fish, after treatment substantially as described 35 and for the purpose described, prepared as an article of food.

8. Apparatus for trimming or butchering the head of a fish for the purpose of carrying out the process claimed in any 40 of the preceding claims comprising cutters or knives and plungers, controlled and operating substantially as described.

9. Apparatus as claimed in the preceding claim hereof having provision for 45 accommodating varying interocular distances.

10. Apparatus for trimming or butchering the head of a fish for the purpose of carrying out the process claimed in any 50 of the preceding claims hereof, substantially as described with reference to the accompanying drawings.

11. A meal or flour as a food for the lower (non-human) animals, prepared 55 according to the process set forth.

12. Process for the production of dry and stable meal-like or flour-like products from the rejected portions of fish substan- 60 tially as described.

Dated this 6th day of July, 1920.

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157,515 COMPLETE SPECIFICATION

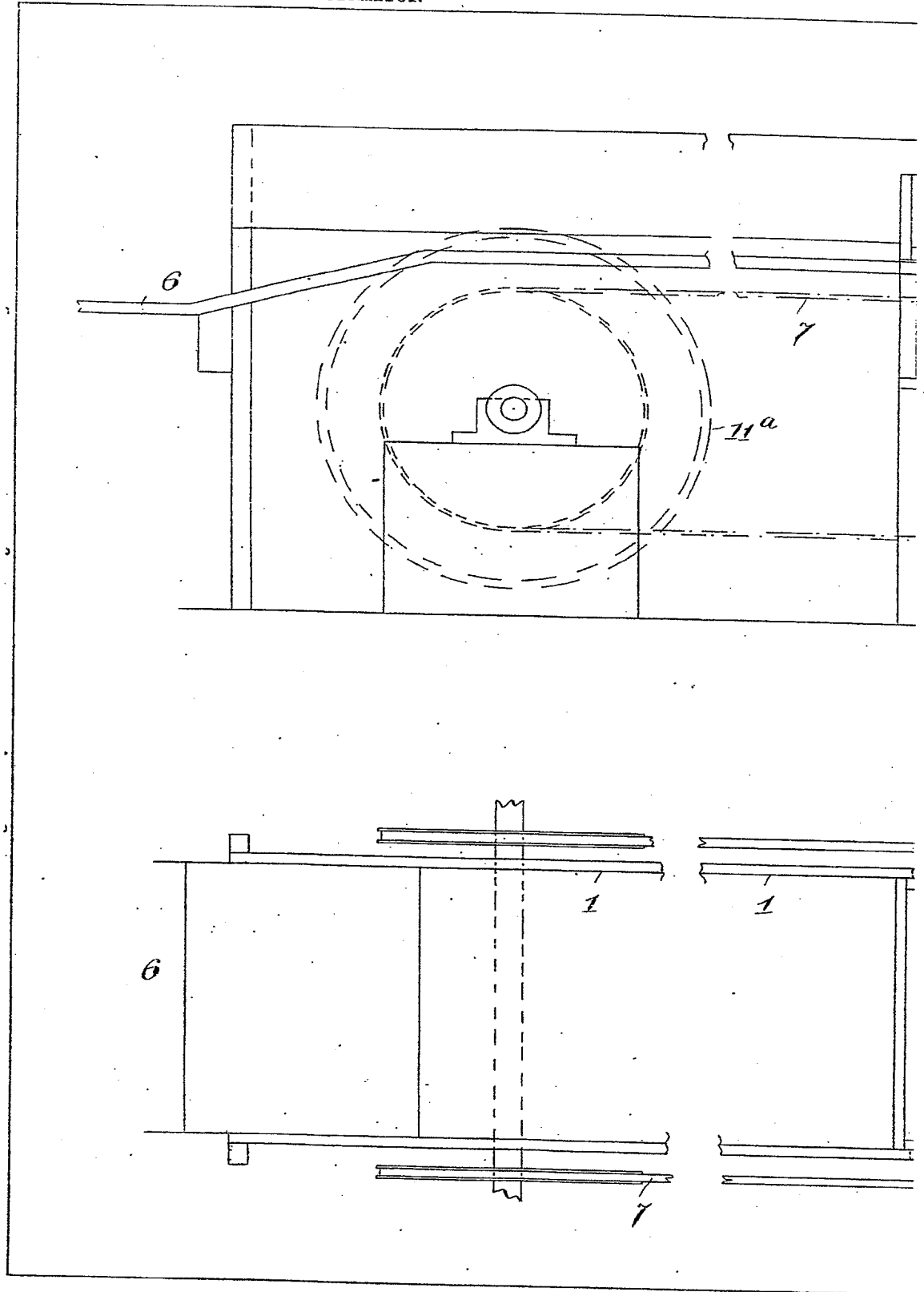


Fig. 1.

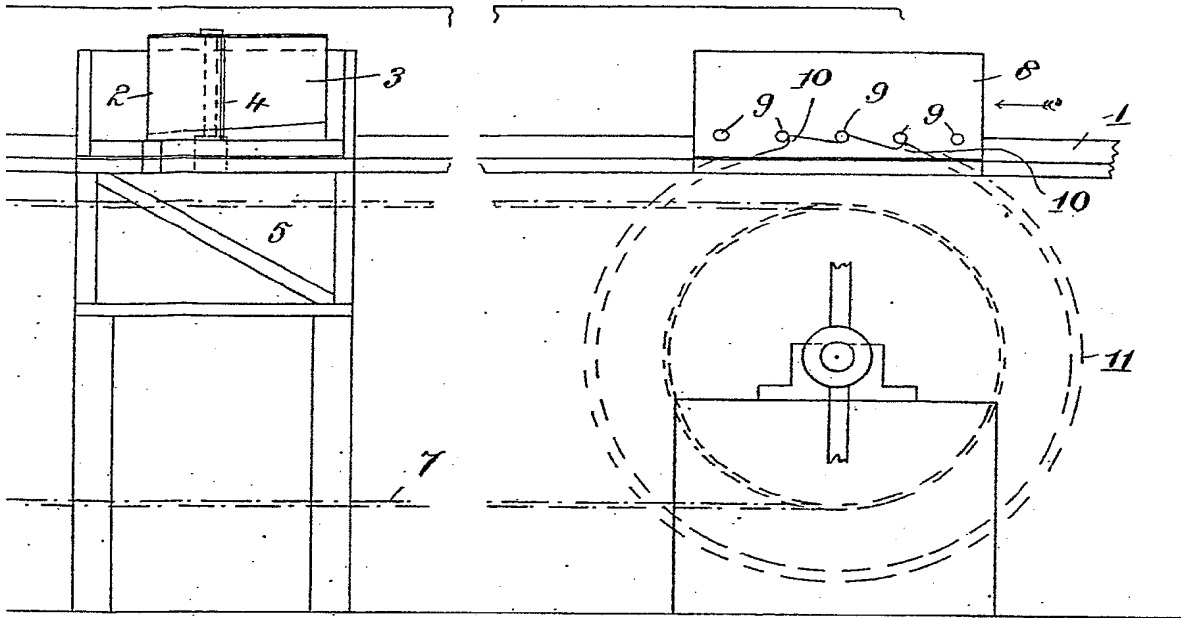
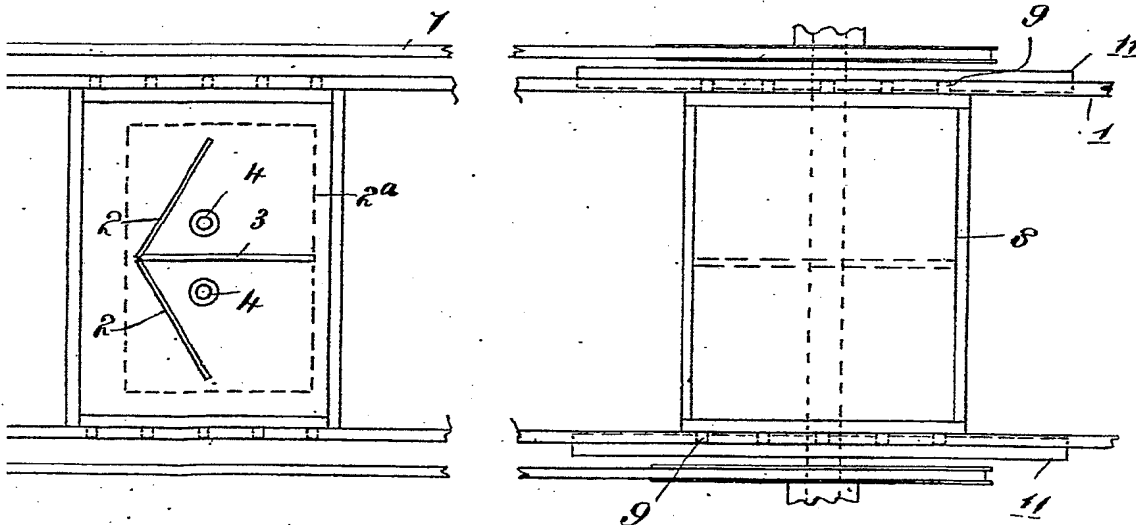


Fig. 2.



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Fig. 1.

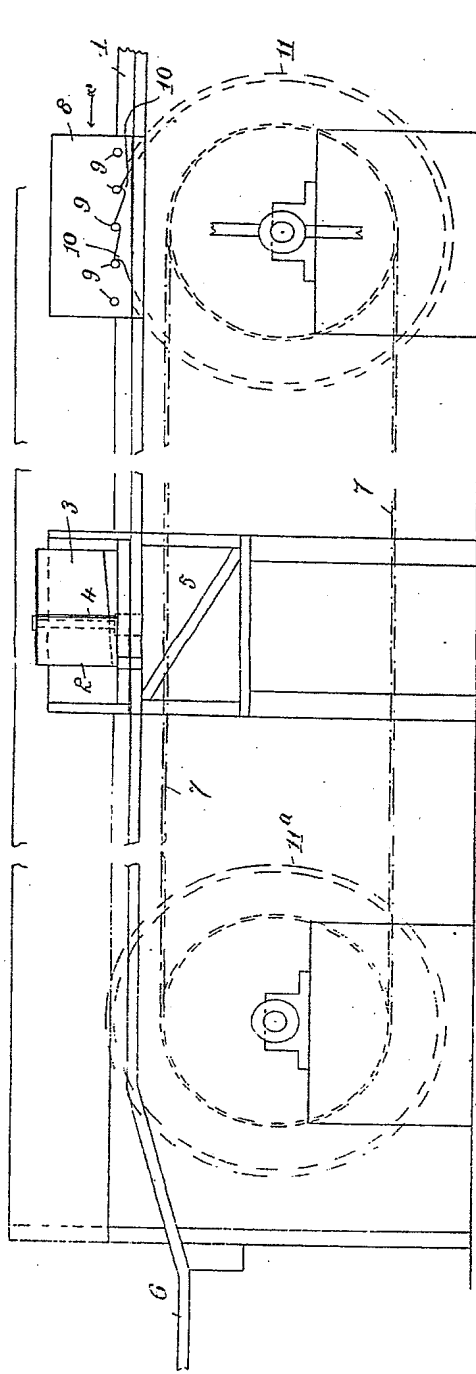
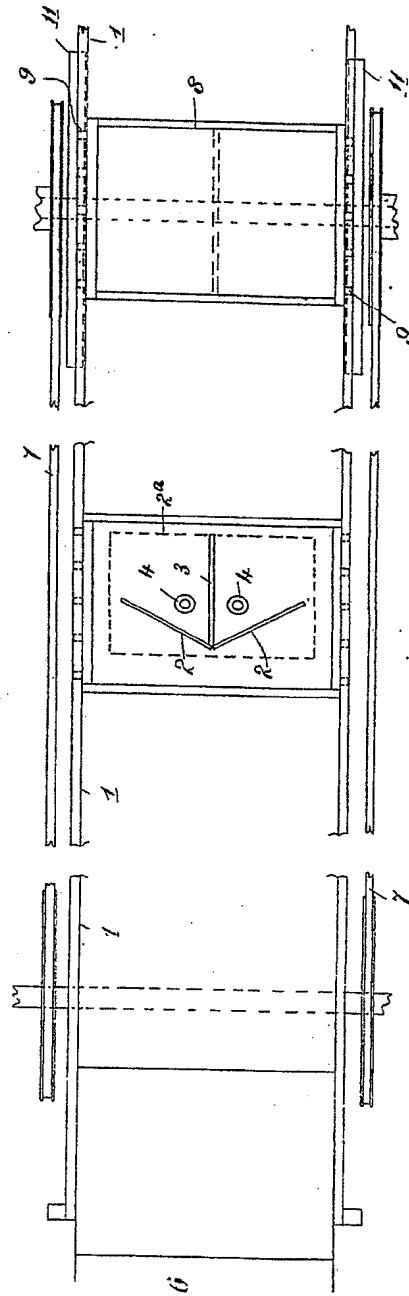
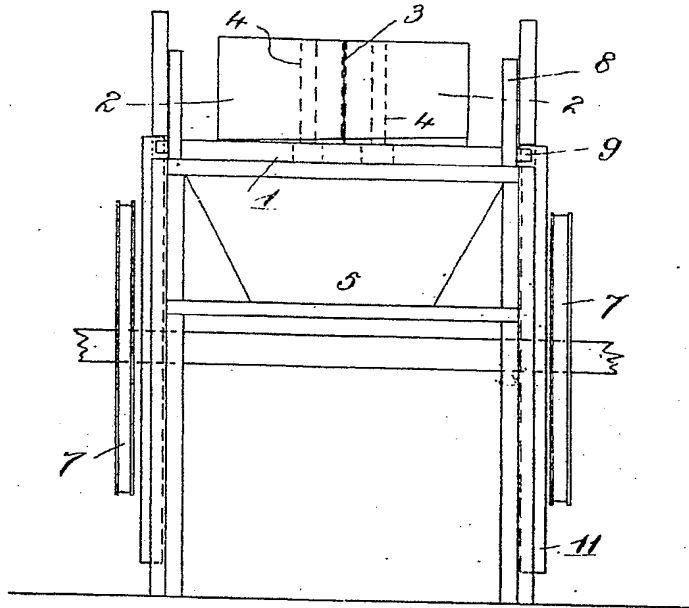


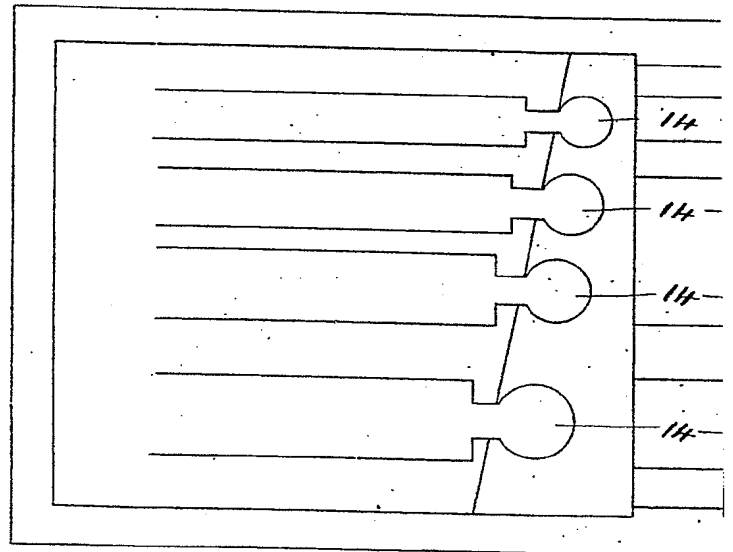
Fig. 2.



*Fig. 3.*



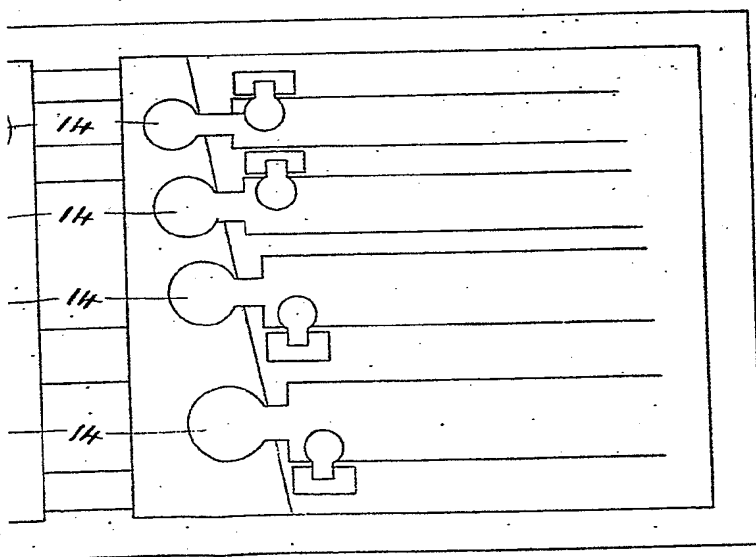
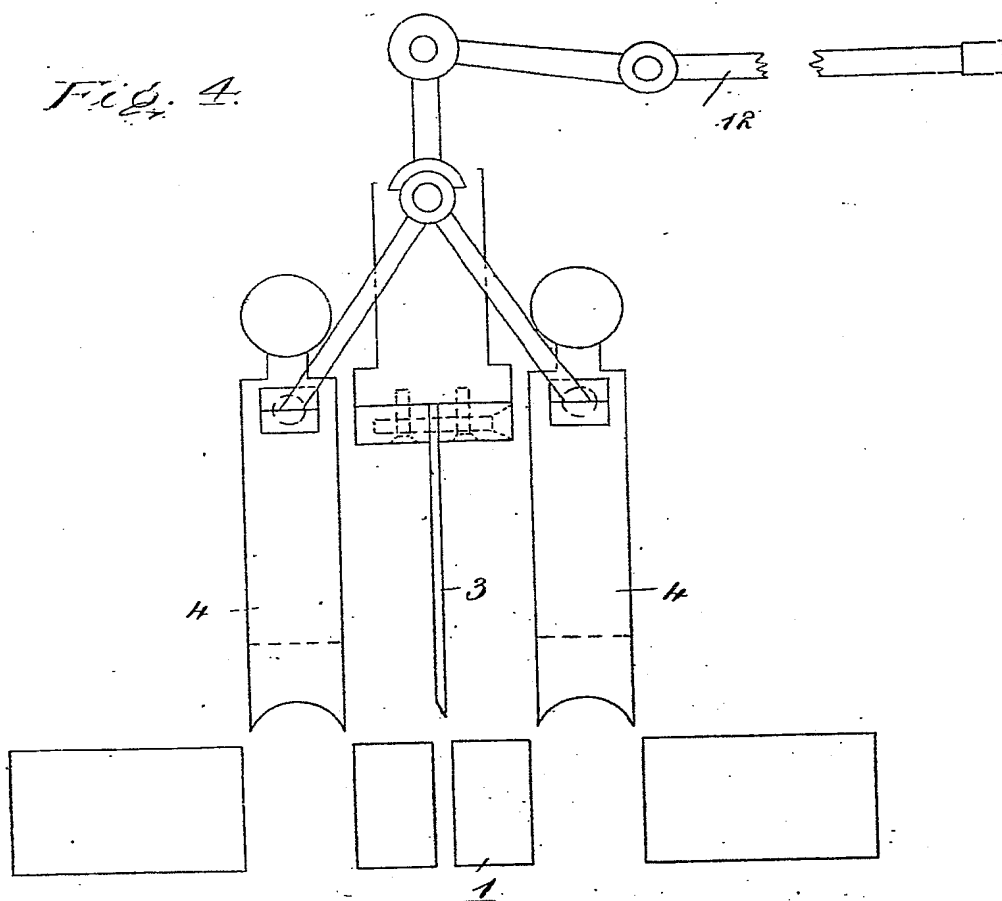
*Fig. 5.*



*[This Drawing is a reproduction of the Original on a reduced scale]*



Fig. 4.



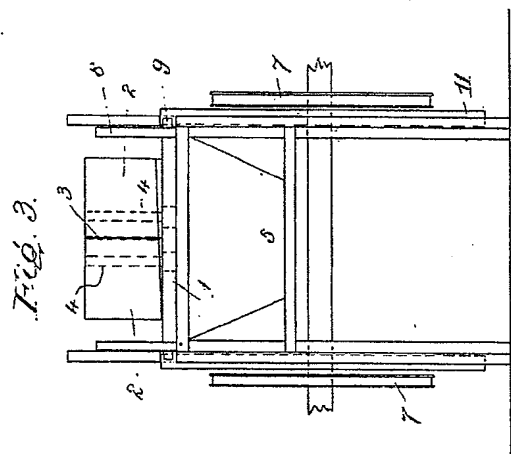
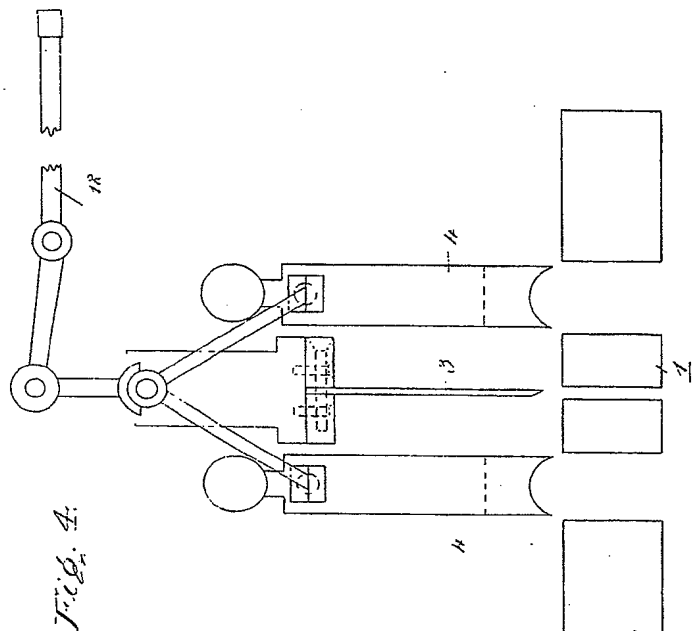
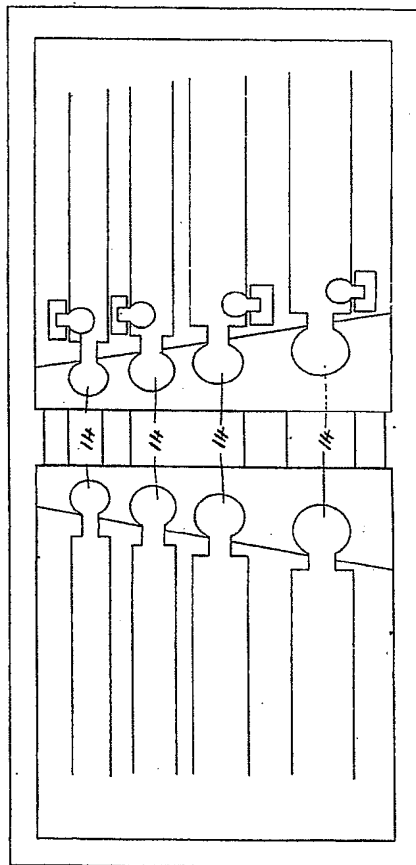


Fig. 5.



[This Drawing is a reproduction of the Original on a reduced scale]

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Fig. 3.

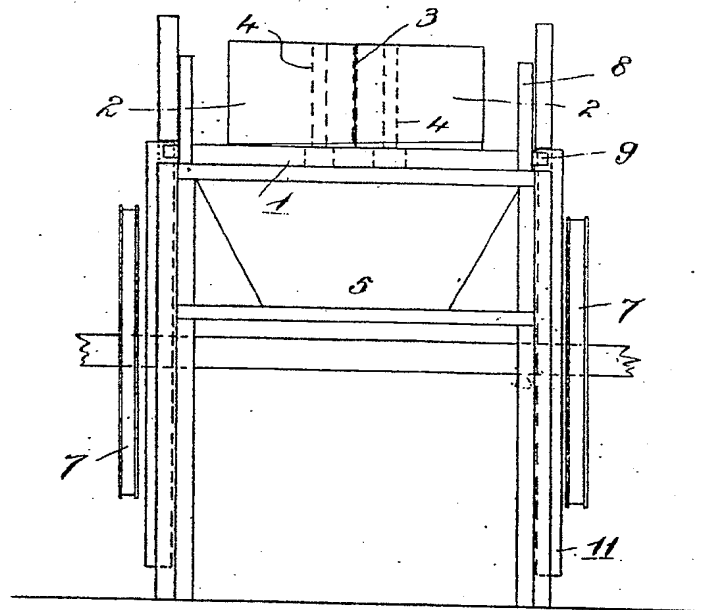


Fig. 5.

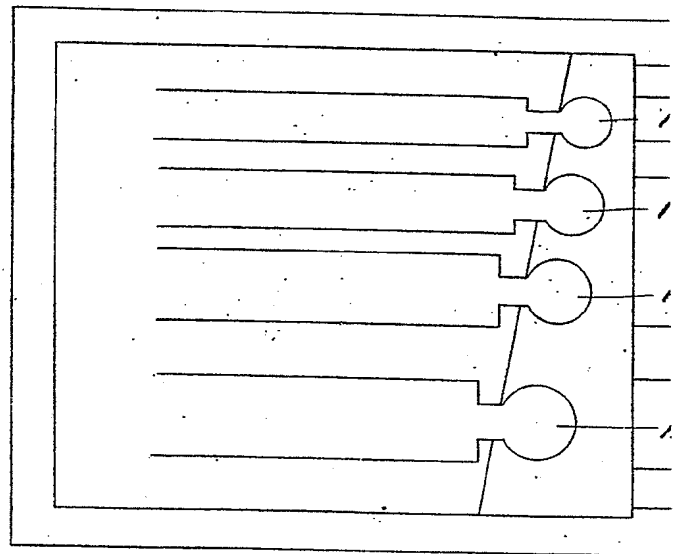
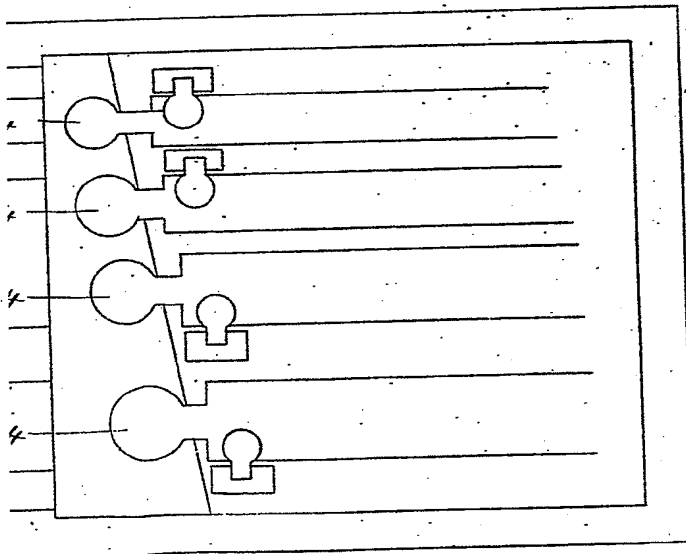
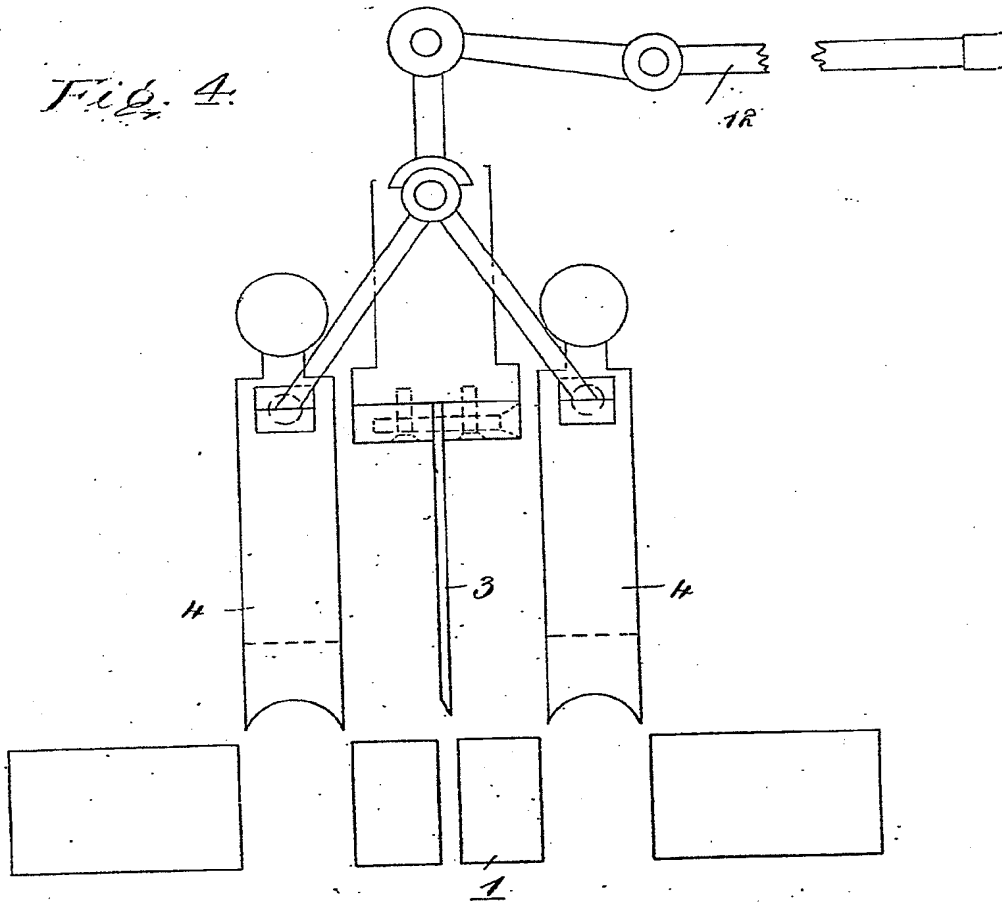


Fig. 4.



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Fig. 3.

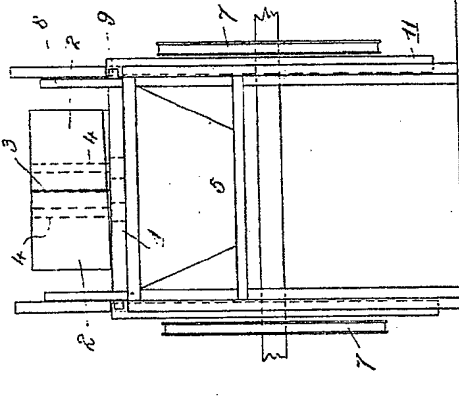


Fig. 4.

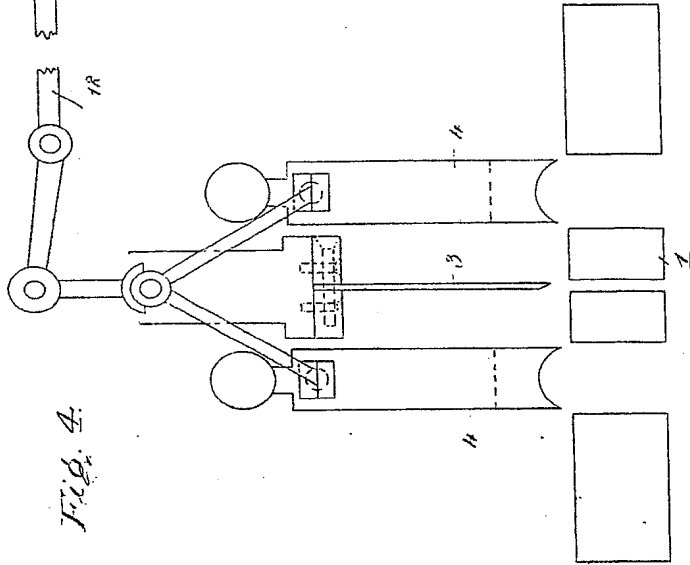
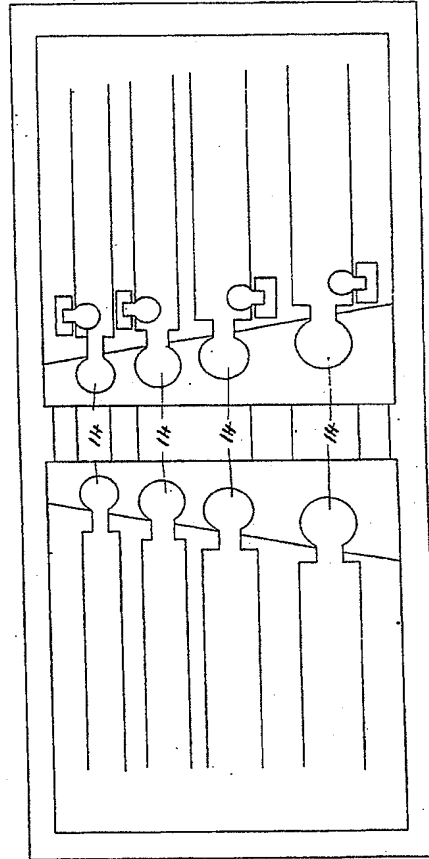


Fig. 5.



[This Drawing is a reproduction of the (Original on a reduced scale)]